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ABSTRACT

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PREDICTING READING VOCABULARY FROM SELECTED VARIABLES

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Pasquale J. DeVito

For years researchers have been demonstrating a relationship between self-concept and academic achievement. One study (Brookover,1967) is probably the most exhaustive and conclusive with regard to the existence of a relationship between self-concept of ability and actual school achievement. Other studies have shown relationships between specific aspects of self-concept and specific areas of academic achievement (Bodwin, 1959; Davidson, 1960; and Wattenberg, 1964).

Although the overwhelming body of contemporary research points to the relationship between self-concept and academic achievement, there is some evidence that this relationship is not universal (Purkey, 1970). Perhaps this is the result of problems of definition with regard to self-concept. The lack of certainty prompted this author to take advantage of an opportunity to examine the relationship between self-concept and reading achievement in a suburban community near Boston.

Problem

A local superintendent of schools theorized that students' self-concepts account for at least forty percent of the variance in reading vocabulary achievement. If his supposi-

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tion was correct, he felt he would be justified in initiating formal teacher efforts to improve students' self-concepts.

Accordingly, the intent of this investigation was to determine the relationship between several aspects of self-concept, derived from the factor analysis of a self-concept inventory, and reading vocabulary. Since the factor analysis revealed different factors for boys and girls, determination of whether prediction efficiency, i.e., percentage of variance accounted for, of the self-concept factors was different for boys and for girls. Additional effort was made to ascertain whether the type of school a student attended had any predictive effect on reading vocabulary.

Method

Three schools from a suburban community near Boston took part in this investigation. Virtually all students in grades three through six took the appropriate level of the vocabulary subtest of the Gates-MacGinite Reading Tests and completed a self-concept inventory (Gordon, 1968). Those students who were absent for the administration of either of the above instruments were not included in the study. A total of 856 students, 432 boys and 424 girls, were included.

The self-concept inventory was factor analyzed by the common factor analysis method, separately for boys and for

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girls. Five factors, four of which were in common, emerged in each instance. Factors were named based on the content of the items and the size of their factor loadings. For boys the factors were labeled teacher-school, physical appearance, creativity, academic self-confidence, and attraction for the opposite sex.

Standardized factor scores were then computed for each individual. Dummy variable coding (Cohen, 1968) was used to indicate the school each student attended. Finally, a set of multiple regression equations was developed using the dummy variables and the self-concept factors for boys and girls. The contribution of each variable was determined by computing the vector of crossproducts of the form beta times the correlation of that predictor with the criterion. The contribution each variable made to the prediction equation was expressed as the percentage of variability in the criterion accounted for by each predictor. The correlations of each predictor variable with the criterion for both boys and girls are presented in Table 1. The multiple correlations, multiple correlation squared, and vectors of crossproducts for both boys and girls are summarized in Table 2.

Insert Table 1 about here

Insert Table 2 about here

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Results

There were two dummy variables used to represent the school effect. The correlations between these variables and reading vocabulary were .12 and -.03 for boys and .11 and -.03 for girls. Adding the first two elements of the crossproducts vector for boys and then for girls, the percent of variance the school effect is accounting for in the criterion was determined. For boys these elements were 2.1% and .4% for a total of 2.5% of the variance explained and for girls the elements were 1.8% and .4% for a total of 2.2% of the variance explained. While the school effect explains a part of the total variance its role in predicting reading vocabulary seems negligible.

The correlations between reading vocabulary and the five self-concept factors for boys were .06, .11, .00, .37, and -.15 with a resulting squared multiple correlation for all seven variables of .199 or 19.9% of the variance explained. This is far less than the 40% hypothesized by the superintendent about self-concept and vocabulary achievement. In fact, only one factor of self-concept, namely academic self-confidence, made a major contribution to prediction, accounting for 14.5% of the variance.

The correlations between reading vocabulary and the five self-concept factors for girls were .05, .05, .17, .32, and .10 with a resulting squared multiple correlation

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for all variables of .139 or 13.9% of the variance explained. This again is far less than the superintendent's hypothesized level of 40%. Likewise, in this case, academic self-confidence, was the only major contributor to the prediction equation, accounting for 11.2% of the total variance.

Discussion

An aspect of this study which must be noted with care is that the experimenter is not dealing with a random sample in a controlled experiment. The groups of interest were the 432 boys and 424 girls in grades three to six in three schools in a Boston area suburban community. Generalizability is severely hampered since no random sampling techniques were employed as a part of the design of the investigation.

Another caution should be added. Many variables which seem to be strong predictors of reading vocabulary could not be included in this study. For instance, intelligence measures for the students in the sample were not available to the researcher. Nonetheless, the findings here indicate that self-concept does not seem to predict vocabulary achievement as a general predictor.

It is obvious that there is a discrepancy between the results of this study and the findings of experimenters in other studies concerned with self-concept and reading

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achievement. This researcher found that all factors including school effect were largely negligible except for the academic self-confidence of the student. The feeling that he can do well in school on the part of the student is related to his reading vocabulry achievement.

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TABLE 1

The Correlations of Each Predictor Variable With the Criterion Variable

Predictor	Boys	Girls
F_1	.12	.11
F_2	-.03	-.03
Teacher-School	.07	.06
Physical Appearance	.11	.05
Academic Self-Confidence	.37	.32
Attraction for the Opposite Sex	-.15	.09
Creativity	-.01	-
Emotional Adjustment	-	.17

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TABLE 2

Summary of the Multiple R_S, Multiple R_S^2, and Beta Times R Vectors for Equations In Predicting Reading Achievement

	Boys	Girls
Multiple R	.447	.373
Multiple R^2	.199	.139
Beta * R Vector		
F_1	.02	.02
F_2	.00	.00
Teacher-School	.00	-.01
Physical Appearance	.00	.00
Academic Self-Confidence	.15	.11
Attraction for Opposite Sex	.03	.00
Creativity	.00	-
Emotional Adjustment	-	.01